22d Congress, 2d Session. | Doc. No. 66.] | Ho. of Reps. Executive.

OHIO AND MISSISSIPPI RIVERS.

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES,

TRANSMITTING

A report of the Officer appointed to inspect the works for the Improvement of the Navigation of the Ohio and Mississippi rivers.

JANUARY 25, 1833.

Referred to the Committee on Roads and Canals.

WASHINGTON, *January* 25, 1833.

To the Speaker of the House of Representatives:

I transmit, herewith, for the information of Congress, the report of the officer to whom was intrusted the inspection of the works for the improvement of the navigation of the Ohio and Mississippi rivers.

ANDREW JACKSON.

DEPARTMENT OF WAR,

January, 24, 1833.

SIR: I have the honor to transmit, herewith, a report from the Engineer Department, to be laid before Congress, in obedience to the provision contained in the 4th section of the act of Congress, of the 24th May, 1824, for the improvement of the navigation of the Ohio and Mississippi rivers.

I have the honor to be,
Very respectfully,
Your obedient servant,
LEWIS CASS.

To the PRESIDENT *of the United States.*

ENGINEER DEPARTMENT,

Washington, January 23, 1833.

SIR: In accordance with the intention expressed in my last annual report, I have the honor to transmit, herewith, the report of the officer who was, at the date of that report, engaged in making an inspection of the works for the improvement of the navigation of the Ohio and Mississippi rivers; which is submitted in furtherance of the provision contained in the 4th section of the act of Congress, of the 24th May, 1824.

I have the honor to be, sir,

Your most obedient servant,

C. GRATIOT,

Brig. Gen.

To the Hon. LEWIS CASS,

Secretary of War.

NEW YORK, *January* 16, 1833.

SIR: I enclose, herewith, my report on the improvements making on the Ohio and Mississippi rivers. You will perceive by a perusal thereof, that an assistant becomes necessary if this work is persevered in. Should the department not have an officer to assign to this duty, I shall find it necessary to call to my aid some person qualified to a discharge of the duty. In which case I shall invite Mr. H. Belin to perform the services, the gentleman recently associated with me in the survey about the Wills mountain.

Respectfully,

Your obedient servant,

RICH'D DELAFIELD.

Captain of Engineers.

Brigadier General CHARLES GRATIOT,

Chief Engineer.

Report on the Improvements making in the Navigation of the Ohio and Mississippi rivers during the summer of 1832.

On the Mississippi river, a continuation in the plans and operations of last season, has been productive of a marked improvement by lessening the risk of navigation, by reducing the number of "snags and sawyers."

The two steamers constructed expressly for the purpose of removing the snags, &c., from the channel (a description of which was given in my report of 1830,) during the season of low water, have been working, one above the mouth of the Ohio, and the other below.

The course marked out by the superintendent for the system to be pursued in effecting the improvement of this navigation, was first to cut away, at low water, all the snags and overhanging trees in the island chutes, and on the sand bars, &c., that endangered the high water navigation. Second, By means of steamers to remove all the large and dangerous snags immediately in the channel way from St. Louis to New Orleans. Third, Af-

ter finishing the removal of the larger and dangerous ones in the channed to return, and at low water take out every piece of timber in the bends, that either now, or hereafter might be the cause of accident, at the same time cleaning the "falling in banks" of all the large trees likely to fall or slide in the bed of the river, and form snags at such place, or by floating down, lodge on some sand bar or island chute, and there endanger the navigation.

In furtherance of this plan, the first and second particulars have been attended to, and been productive of great advantage. Notwithstanding the increase of trade, the risks and losses are diminished materially; the passage of boats both up and down stream is now uninterrupted: heretofore the night would suspend the prosecution of the voyage at points on the river noted for the number of snags.

In the prosecution of the last part of the course marked out by the superintendent, considerable progress has been made this season by the boats, between the mouth of the Ohio and Memphis, a distance of upwards of 200 miles, in removing all the timber from the river, remaining either in the high or low water channel, island chutes or bends.

It must be remarked that only one high and low water channel has been attended to. Instances are known of boats taking other channels, and accidents occurring in them. In connection with the last part of the improvement, laborers have been employed to descend the river in boats, stopping at all the falling in bends and points, to remove the large timber. This part has not received as much attention as I conceive its importance demands, and beg leave to call your attention to the subject, deeming it quite as essential to be persevered in as that with the steamers.

Clearing off the falling in banks prevents not only an accumulation of snags at the position the banks may undergo a change, but also the many, that in the course of one or two floods are washed from these positions, float down the river, and ultimately form a more dangerous snag in the channel way below. If attention is given to this part of the system, the year previous to the steamer's going to work on these parts of the river, the labor is much diminished by having to remove such only as would form permanent snags, the action of the current having carried off many that came from the adjacent bank, and when the clearing off the banks and removal of the snags from the river has been thus attended to, no farther accumulation or formation occurs at such point for several years. Besides cutting off the source of the evil on the sand bars below, an advantage is gained by clearing the banks from its rendering them much more permanent. The force of the current acts upon a perpendicular bank, a constant cause operating to form which is the weight of the large forest trees overhanging the bank.

The timber being removed, the bank in time assumes a slope upon which the current is in consequence reflected at a diminished angle, thereby in a measure losing its power, and eventually giving a more uniform and permanent shore. In support of this, we have but to notice all the cleared banks of the river where the changes are gradual compared with the timber lands, and the snags very limited in number.

I deem particular and unremitting attention to this part of the improvement as of the greatest consequence in perfecting the work, and eventually freeing the river entirely of the danger from snags and sawyers. No possible injury can arise from it that I am aware of. In general, cottonwood, and sycamore, is the growth of timber, neither of which are of much value. The latter is not used for any purpose, and the former as fuel for the steam-

ers only where ash cannot be found. Even its value as fuel sinks to nothing, when we consider its rapid growth, the immense surface covered by it, and that only such is destroyed as would eventually be lost to the wood cutter by the "falling in" of the bank.

The whole operation, with the exception stated, is now in such a favorable train, that, if persevered in, the period is not distant when every danger of this kind can be remembered by the pilots. The number of snags being limited to such as would collect before the boats could descend the river, after a flood, to remove such as had lodged from the drift of the year. An operation that a single boat can effect during a season, from St. Louis to the Balize.

If we consider expense, clearing the banks will tend to lessen the ultimate cost. By the steamers its costs, on an average, eight dollars per snag to remove them. To prevent their accumulation, would cost the labor of one man a day; say one dollar for every fifteen trees that would form snags.

The practicability cannot be questioned. Already two hundred miles have been so cleared as to answer present purposes. On the lower part of the river, for three hundred miles from the sea shore, the cultivated district reduced the work to a few points only, leaving about 600 miles to be cleared.

On this distance we have only to clear the "cutting in" banks found on alternate sides of the river, reducing the work to a strip of 600 miles in length, by 50 yards in width, or 9,600 superficial acres.

The agents employed are skilful and industrious, and the work in progress managed with due attention to economy and efficiency. I find nothing calling for an interposition of the authority contained in the act of the 2d March, 1831, suspending the operation of any work, or payment of any account.

Inspection made in September and October of 1832.

Respectfully submitted,

RICH'D DELAFIELD.

Capt. of Engineers.

To Brigadier General, CHARLES GRATIOT,

Chief Engineer.

January 14, 1833.

Continuation of the report on the Improvements making on the Mississippi and Ohio rivers, during the summer of 1832.

On the Ohio, the improvements contemplated are to remove the rocks from the low water channel; take up all the logs and stumps from the bed of the river in the channel way, and deepen the water at the several bars.

The operations of the year have been confined to the two latter improvements. The first class of works not having been prosecuted since the previous year, no such obstructions existing on the section of the river to which the superintendent could find time to give his attention. The work, at the present time, being confined to the distance between the falls and the mouth of the Ohio, (say 375 miles.)

Four machine boats have been constantly employed during the low water, removing the sunken logs and stumps from the channel way. This

work is progressing with success, the machinery being adequate to raise the largest log as yet found. The boats for this purpose are provided with the wheel and axle purchase, the fall from which is carried to a barrel worked by a cog wheel and pinion with men, at cranks. The details of this machinery were described in a previous report.

It is but to persevere with this part of the work to perfect it, and entirely remove all risk or danger to be apprehended from obstructions, as destructive in their effects as so many hidden or sunken rocks.

The last class of works has now been so far tested as to render no longer doubtful the success of removing the bars from their present positions; and to this period entirely accomplishing the object in view of giving a permanent and unchangeable 3½ and 4 feet channel way.

With a judicious location of the dams, I am more fully confirmed in the belief that permanency may be secured to all such works; and that removing the bar from one point, shall not form another immediately below. This is the only doubt as to the entire success of the works of this class.

The results thus far have been satisfactory. Last year two of the most difficult and shoalest bars were dammed, as shown by figures 1 and 2, accompanying this report.

On the Scuffletown bar, fig. 2, there was formerly but 18 to 20 inches water at the low stage of the river. Since the dams have been constructed there is four feet, and no injurious formation below it. All the sands having apparently been deposited under the lee and eddy made by the dam, and the channel confined within permanent banks.

A reference to fig. 2, No. 8, of my report of 1831, will exhibit the position of the shoals at that time, and the present sketch, fig. 2, will give an idea of the change effected by constructing the dams.

Fig. 1 is a sketch of another system of dams constructed last year, that have been productive of satisfactory results at the Sister islands. In this case, as the previous ones, the sands washed from the bars have been deposited under the lee of the dams. Fig. 4, No. 12 of the report of 1831, exhibits what was then supposed to be the position of the shoals at that time, and the sketch accompanying this report (fig. 1,) the present position of the shoals. If these two figures are correct, a very great change has been made in the whole bed of the river, proving the facility with which the channel may be deflected in any direction, and the necessity of having surveys for each and every one of these bars to judge properly of the effect produced.

My sketches of 1831 were based upon an outline taken from the "western navigation," with the shoals as supposed to exist by the superintendent, whose knowledge of the several localities is not surpassed by any navigator on the river.

The acompanying sketches are not offered as any thing other than the results of coup d'œil, and not sufficient to confirm my opinion of the causes of change between it and the sketches of last year. The dams at the Sister islands may need lengthening to continue the channel in an unchangeable course through the shifting sands, towards the rocky shore, near the mouth of the creek.

Fig. 3 is a sketch of the river near Cumberland island, with the dam now constructing to throw the low water channel to the left of the Island, and by the town of Smithfield, to avoid a shoal bar near the lower point of the island. The progress made in the formation of this dam is not such as to form an opinion of the effect it will produce other than was anticipated be-

fore its commencement. The labor of a month will suffice to test its utility.

In this case, the present figure (3) differs materially from that of last year, (No. 13, fig. 1,) making it still more necessary that surveys should be made, and the position of the dam distinctly delineated upon them before locating the same.

Fig 4 exhibits the dams constructing at French island bar. It was contemplated to throw the low water channel between the island and the Indiana shore. The examination made by the superintendent proved satisfactorily, that a rock formation in that pass rendered the plan inexpedient; and the system of dams was devised to accomplish the removal of the bar at the foot of the Island.

The dam (see fig. 4,) a a a, from the foot of the island, was formed during the absence of the superintendent on the Cumberland river His instructions to the overseer were to locate it parallel with the Kentucky shore, and thence with the lower dam. No other means for effecting this location was adopted than the eye, the consequence of which is, that another dam has to be constructed, in part, on the lines a a b b, to produce the desired change in the channel, and some labor is lost.

No. 8, fig, 1, of last year's report, exhibits the then supposed position of the bars, and contemplated dams to effect their removal. In this instance, also, is the necessity of proper survey apparent. Had they been made, and a compass course given for the line of the dam, no deviation or removal of any part of the work would have been necessary. I must, therefore, urge the department to assign an assistant to this work, who can, at all times, be present to watch the changes produced, and be ready to make the survey of the point it is contemplated to improve; upon which, the superintendent shall be required to project the dams necessary for producing the desired results; and when approved, not to be departed from without the sanction of your department. This work must be done during the season the dams are to be constructed, that the true position of the shoals may be ascertained since the last flood. It should become the duty of this assistant to give such points and stakes as will enable the superintendent to construct his dams in the positions delineated on the surveys.

The duties required under the existing law are extended too widely for the superintendence of one individual.

He is now charged with the works in the Mississippi, from St. Louis to New Orleans, and on the Ohio, from Louisville to the mouth of the river. During the construction, and more particularly the location of the dams on the Ohio, his daily presence is required.

To be called off at such a time either for the upper part of the river or for the Mississippi, is an injury to the service.

The consequence is, that, from Pittsburg to Louisville, nothing has been done towards improving the navigation under the several acts of Congress for this purpose.

I must, therefore, call your attention to the expediency of making such a division of these improvements, that other sections of the river may be worked simultaneously with those now in progress. Attending first to the removal of rocks, trees, and stumps, with such snags as may be found in the channel way, leaving the construction of the dams until the system has been perfected and tested by time on the lower part of the river.

The arrangements made by the superintendent are judicious. A large force of laborers is employed at several positions, and four steamers towing light-

ers to and from the quarries and dams. The whole of which is managed with method and system calculated to produce the greatest quantity of work with the least expenditure.

Inspection made in September and October of 1832.

RICH'D. DELAFIELD.
Captain of Engineers.

To Brig. General, CHARLES GRATIOT,
Chief Engineer.